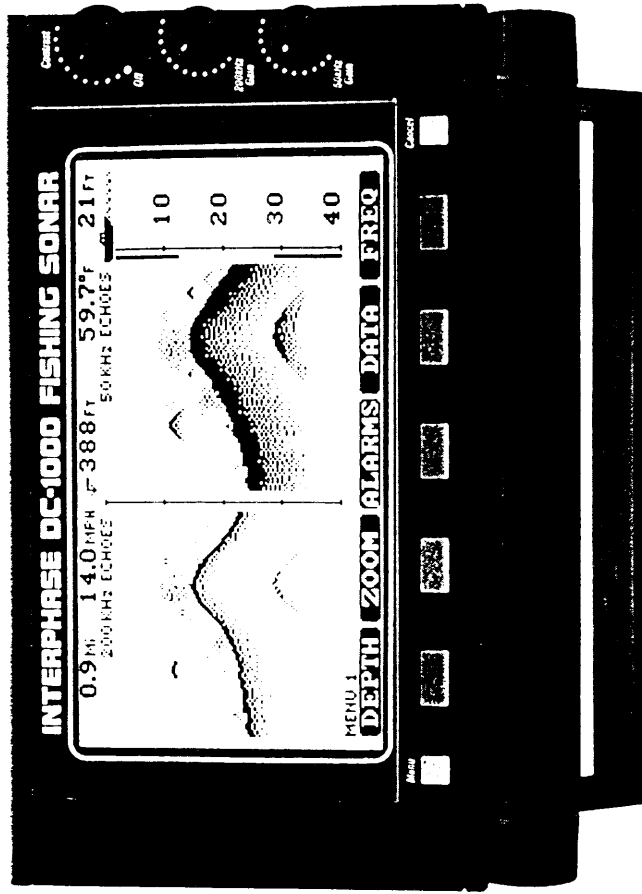


INTERPHASE DC-1000™

LCD Fishfinder



INTERPHASE TECHNOLOGIES

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Operation Manual

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To Our Customer:

Thank you for choosing the **Interphase DC-1000™**. Throughout the development of this fine product, we have been primarily concerned with creating a unit that offers the best possible value for your money. Selection of features, ease of use, superior performance and outstanding reliability were the benchmarks upon which all important design decisions were made. We feel proud of the **DC-1000** and your satisfaction is very important to us. To this end, we welcome any comments or suggestions that you might have in regard to this equipment.

It is important that you complete the **WARRANTY REGISTRATION CARD** and return it as soon as possible.

Sincerely,

INTERPHASE TECHNOLOGIES

Interphase DC-1000™ is a trademark of Interphase Technologies, Inc.

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General Information

Congratulations on your selection of the **Interphase DC-1000** LCD depth sounder. Its ruggedly built, compact design makes it ideal for installation on nearly any boat. The **DC-1000** will display water depth, bottom conditions and submerged objects such as fish on its high resolution SuperTwist Liquid Crystal Display (LCD). It has the capability of transmitting and receiving depth information at either 200kHz or 50kHz or both simultaneously. The unique transducer supplied with the **DC-1000** includes a single element design that will work at both frequencies, plus speed and temperature sensors which enable the unit to simultaneously display a graphic picture of the depth information, digital depth under the boat, boat speed, distance traveled, distance of targets behind the boat, and surface water temperature.

The **DC-1000** also includes many advanced features to make your fishing more productive, such as split screen **Zoom**, **Bottom Lock**, and **Data** modes, **Fish Alert** mode, four **Alarm** modes, and an innovative **Loran Track-Plot** display.

The **Loran Track-Plot** display on the **DC-1000** gives a whole new dimension to modern fishing by enabling you to not only see the depths beneath your boat but to also see a display of your boats position and and progress over time. The **Track-Plot** display makes it easy to find and return to the same hot fishing spot, or to troll back and forth over the same productive areas.

To ensure that you receive the maximum benefits available from the outstanding features of the **Interphase DC-1000**, please carefully follow the steps outlined in this manual. **An instructive demonstration simulator has been designed into the DC-1000 and we highly recommend that you spend some time using it prior to actual use. We also recommend that you read this entire manual before attempting to either install or operate your DC-1000.** By doing so, you will become familiar with the parts, procedures, and practices necessary to provide you with many valuable hours of use.

DANGER and IMPORTANT Notices

DANGER notices posted throughout this manual indicate possible hazards to equipment to be avoided while assembling and/or operating the depth sounder.

IMPORTANT notices posted throughout this manual indicate certain facts which are noteworthy and included for your best interest.

Warranty Information

Interphase Technologies provides a limited one-year warranty on the **DC-1000** depth sounder. We strongly urge you to read this warranty reprinted at the back of this manual) and closely follow its terms and conditions should your **DC-1000** require repair. Please note that all repair work performed during the warranty period must be performed by **Interphase Technologies** or an authorized Warranty Service Center for the unit to remain under warranty.

We strongly recommend that should you experience a problem with your **DC-1000**, you first call **Interphase** and ask to speak to our **Customer Service Department**. We will be more than happy to try and assist you on the phone, and if required will give you instructions of how to quickly get your set repaired.

The enclosed warranty registration card must be completed and returned to **Interphase Technologies** as soon as possible, so that your unit may be protected under the warranty.

Interphase maintains a staff of trained technicians in Santa Cruz who can quickly repair and return your set to its original specifications. We strongly recommend that for the fastest service, if your set does require repair, you send it direct to **Interphase** and not return it to the dealer.

Principle of Operation

The **DC-1000 LCD Depth Sounder**, which acts as both a transmitter and receiver, uses the principle of sonar to effectively determine the distance and density of objects such as fish, underwater matter and bottom conditions below your boat.

First, the transmitter converts a small amount of electrical current from your battery into ultrasonic sound pulses which are fed into the transducer or sounding unit. These pulses are transmitted into the water in a cone shaped pattern, called the cone angle. When the sound pulse strikes an underwater object it is reflected back (echo), received through the transducer, and converted back into electrical impulses. These impulses are then displayed as an image on the LCD display.

The **DC-1000** then calculates the time difference between the transmission and return of each pulse, thus determining the depth of the detected object. Echoes are electronically sorted by strength or density; the LCD screen displays these sorted echoes in a variety of shapes, and sizes to give you an accurate depiction of what lies below your boat.

The strength of the echo, the depth of the object, and the angle of the transducer's beam all affect how the image appears on the screen. Other factors which affect the image include boat speed relative to the movement and position of the displayed image and the number of objects reflecting the pulses back to the **DC-1000**. Learning to properly interpret the depth sounder takes both patience and experience.

Installation

Main Unit

The compact size of the **DC-1000** allows for easy installation in most any vessel. To get maximum performance and life from your unit, the following guidelines should be considered when selecting a mounting location:

- 1) Select a location where the unit is protected from excessive temperature. Heat is one of the worst enemies of electronic components, and will accelerate component aging, thereby reducing the trouble-free life of your **DC-1000**.
- 2) Mount the display in a location where it will be convenient to route the power and transducer cables.

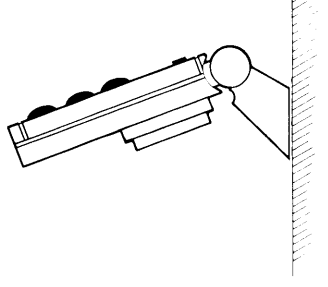


Figure 1

Shelf/Table

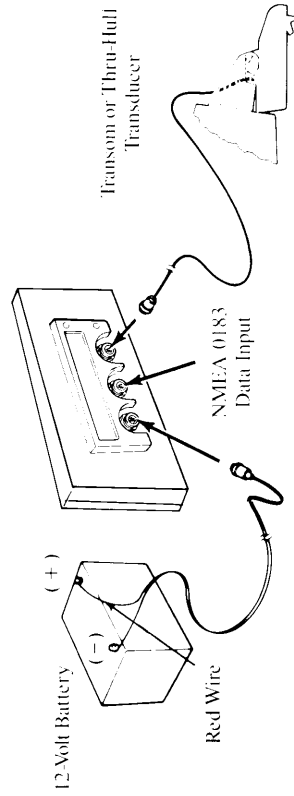
Power Connection

Connect the two-pin plug on the end of the power supply cable to the power supply jack located at the rear of the main unit. Connect the red wire to the positive terminal and the black wire to the negative terminal of your boat's 12 VDC battery (*Figure 2*).

To minimize electrical interference, carefully route the power cord so that it does not run parallel or close to the transducer cable, engine, refrigeration, bilge pump or any other critical wiring.

IMPORTANT: The DC-1000's 12 VDC power leads should go directly to the boat's battery, distribution board, or breaker panel. Instability of the display may result if the unit has to share leads with other electrical systems aboard your boat.

Figure 2



Wiring for Power & Transducer Connectors

The correct pin-out wiring sequence for the power and transducer connectors are shown in *Figure 3*. If a cable longer than that supplied with your unit is needed, contact your **Interphase Technologies** dealer. **Interphase Technologies** extension cables are available in 10', 20' and 30-foot lengths.

DANGER: Removal of any connector, disassembly of transducer, shortening of any cable, or use of any cable other than that supplied by **Interphase Technologies** may void your warranty.

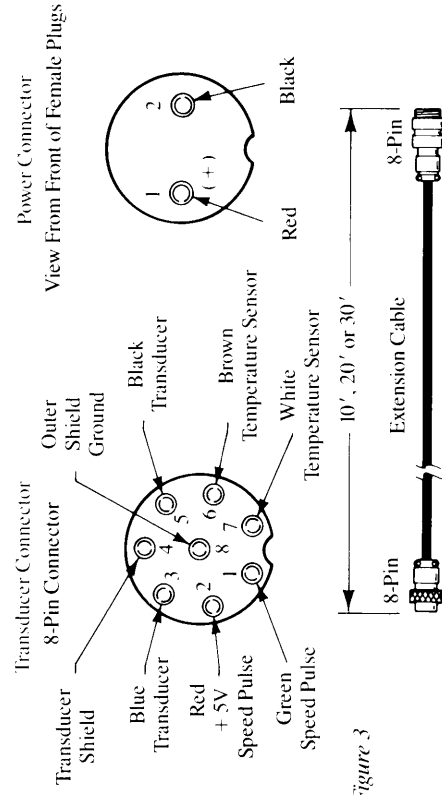


Figure 3

Transducers

The DC-1000 is available with either transom or thru-hull type transducers. The following section deals with the procedures for proper installation of each of these transducers.

IMPORTANT: If for any reason you prefer another type of transducer available through **Interphase Technologies**, we will exchange your **unused** transducer for the one of your choice. In some cases an additional cost may apply. Contact **Interphase's Accessory Sales Department** for additional information.

Transducer location and installation is very important for optimum performance of your DC-1000, especially at high boat speeds. In general the transducer should be located in an area that is as free from water turbulence as possible. In addition the following considerations should be observed:

- 1) Choose a location where there is the least amount of acoustic noise, air bubbles or turbulence caused by the boat's movement. The transducer should not be located nearby or behind the propeller.
- 2) The transducer should always remain submerged regardless of the speed of the boat and should not be mounted where it could be damaged by underwater obstacles or when loading on a trailer.
- 3) DO NOT locate the transducer in the bow of the boat where it will be subject to intense turbulence as the boat pounds in a sea-way.
- 4) DO NOT locate the transducer directly behind any hull protrusion which will cause the water to be turbulent when it reaches the transducer. For displacement hull power boats, an inside-hull or thru-hull installation is best. For high speed planing hulls, the transducer should be well aft and close to the keel so it remains in the water.

DANGER: DO NOT allow any solvents, i.e., gasoline, acetone, to come in contact with the transducer or head unit as this may dissolve the material.

DANGER: The standard transom mount transducer includes 25' cable. DO NOT shorten this cable. If it needs to be longer, we recommend the use of Interphase extension cables available in 10', 20', and 30' lengths.

Transom Transducer Installation

- 1) Assemble the transducer to the bracket as shown in *Figure 4*.

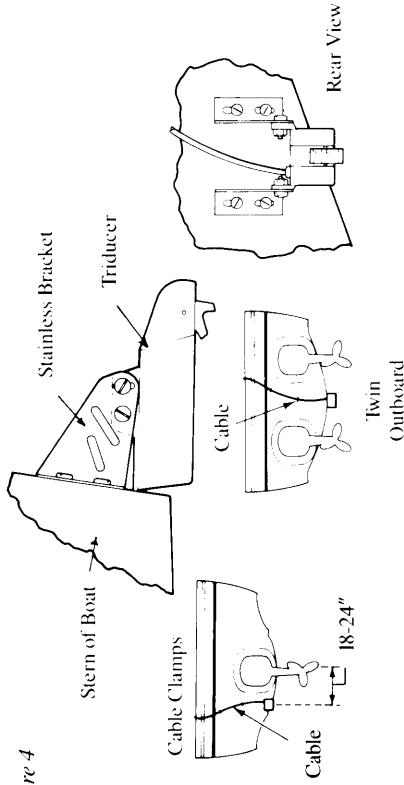


Figure 4

- 2) Choose a mounting location where the transducer will always remain submerged and out of the way of trailer loading.
- 3) The transducer can be installed on either side of an outboard or inboard/outboard engine, or between twin outboards. For single engine installations, normally 18" to 24" outboard of the propeller center line is acceptable and the upswing side is preferred. However, as a rule of thumb, mounting close to the prop, 4" from the outer swing may be acceptable depending on your hull type. Choose a location where water flow is smoothest. For dual engine installation, just off the center line is acceptable.

IMPORTANT: If you have an inboard motor, transom mount transducers should not be used. See thru-hull transducer section.

- 4) Make sure that the angle between the face of the transducer and the water's surface does not exceed 10 degrees. The leading edge projection of the triducer wedge should be 1/8" to 1/4" below the hull for optimum performance and clear echo presentation. Align the trailing edge to be 1 to 2 degrees below the leading edge. This is recommended so that the "bottom face" of the transducer always has a positive pressure when the boat moves through the water. Try a few higher speed runs to test operation of the transducer. It may be necessary to slightly adjust the transducer angle up or down for optimum results.

- 5) Route the transducer cable separate from other electrical wiring in order to help prevent interference.

IMPORTANT: The paddlewheel impeller assembly's speed range is 0.5 knots to 60 knots. It is made to be removable to simplify replacement and maintenance. The paddlewheel impeller assembly incorporates shear pins which break away in the event of impeller impact, leaving the main depth housing intact. If you should lose the impeller assembly, replacements are available through your dealer or contact **Interphase Technologies Accessory Sales Department**.

Thru-Hull Transducer

Thru-hull transducers are the recommended choice for larger boats with in-board engines. Thru-hull mounting typically provides the optimum performance because the face of the transducer can usually be located in an area free of turbulence and air bubbles.

The standard thru-hull transducer option available with the **DC-1000** is a bronze thru-hull triducer which combines depth, speed and surface water temperature into a single bronze housing requiring only one 2" diameter hull penetration, approximately 2/3 to 3/4 of the way back from the bow of your boat.

IMPORTANT: Interphase recommends that only a qualified dealer or boat yard install thru-hull transducers or fittings.

DANGER: Do not install a bronze transducer housing directly in a metal hull because electrolytic corrosion will occur.

Thru-Hull Triducer Installation

IMPORTANT:

- 1) Make sure the water flow across the thru-hull triducer is bubble and turbulent free at all speeds if good depth and speed sensing performance is to be achieved.
- 2) On displacement hull power boats, the transducer should be mounted relatively close to the centerline of the hull.
- 3) On I/O's mount the transducer close to the engine. On inboards always mount the transducer well ahead of the propeller.
- 4) Mount the transducer in a place which has reasonable access from inside the vessel since the transducer will require tightening from inside the hull and the paddlewheel assembly may require periodic removal and inspection to check for marine growth.

Installation

- 1) If the deadrise angle at the mounting point of the hull exceeds 10 degrees, a fairing block is strongly recommended. A fairing block is typically made of teak or mahogany wood and should be used between the transducer and hull (both inside and outside) to insure that the transducer's face is parallel to the water's surface. Make the fairing block as smooth as possible and not bigger than the transducer's face to minimize possible turbulence (*Figure 5*).

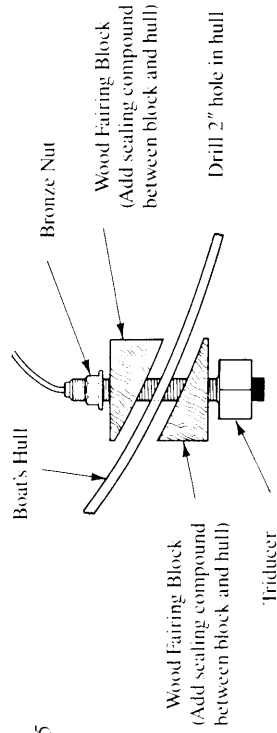


Figure 5

Operation

Your **Interphase DC-1000** has been carefully designed to be as easy to use as possible, however we strongly suggest that because of the sophistication of the unit that you take time to carefully read through this section of the manual prior to attempting to use the unit in actual operations. The **DC-1000** includes a built-in simulator which makes it easy to practice with the unit and get a feeling for its many features before actually using it in real situations on the water.

The raised push-button keys on the **Interphase DC-1000** provide a tactile feel to each operation and the **DC-1000** responds with an audible tone each time a key is pressed. In addition, each operation is accompanied by an immediate visual response on the LCD screen. With the **DC-1000**, there's no waiting for your unit to show the display you want to see. The **DC-1000** has a total of only seven buttons; five "soft keys," a Menu and Cancel button. (See *Figure 6* below)

Once you have your unit installed, take the time to carefully "walk-through" each of the steps outlined below referring as needed to the figures in each section.

Operation Of The Keyboard (Softkeys)

The **Interphase DC-1000** uses a unique approach to its keyboard, called "softkeys." You will notice, looking at the front of the unit that only two of the seven keys are permanently labeled (the far left Menu key and the far right Cancel key). The other five keys are labeled by the LCD display and are controlled by the **DC-1000's** software, thus the name "softkeys."

The "softkey" approach allows for very easy operation, it almost guides you along, even though the **DC-1000** possesses an amazing number of very advanced features. It would take a considerable number of additional buttons and greatly add to the operational complexity if each function had a dedicated button instead of using the **DC-1000's** "softkey" approach.

Although the "softkey" approach is new and different, we think that after you have used it a few times you'll agree that makes the operation very simple, almost not requiring the use of the manual.

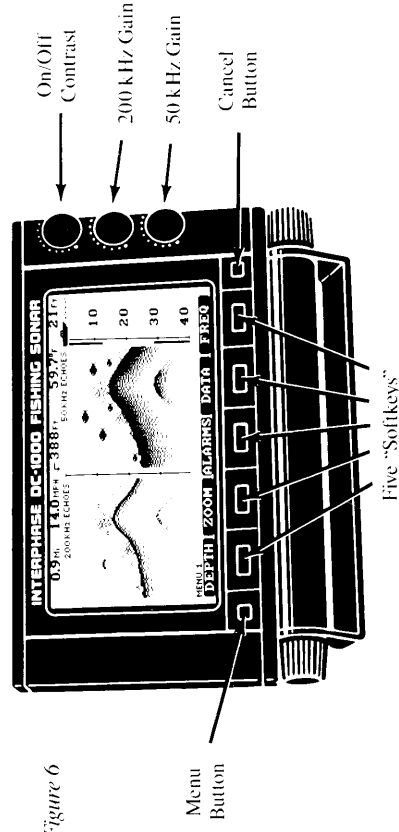


Figure 6

DANGER: Wood hulls and fairing blocks will expand after the boat is put back in the water, so it is important that the transducer be only hand tightened until the wood fully expands. Otherwise the fairing block may crack.

- 2) Drill a 1/8" pilot hole from inside the hull to assure access to tighten the housing nut and clearance for the cable. If there is any hull irregularity near the selected mounting location, it may be desirable to drill from the outside.
- 3) Use a 2" hole saw and drill the hole from the outside of the hull. Sand or clean the area around the hole, inside and outside to assure that the sealing compound will adhere properly to the hull. Select a marine grade bedding/caulking compound and use according to the instructions.
- 4) Remove the hex nut from the housing and cable.
- 5) Thread the transducer cable through the inside of the hull.

DANGER: Do not apply tension to the transducer cable as this may sever internal connections. Apply a 1/8" thick layer of sealant on the upper flat surface of the bronze housing and fairing block if used. Also apply a thin layer up the sidewalls to a height of 1/4" greater than the hull and shim thickness.

- 6) From the outside of the hull, push the housing into the 2" hole. Tighten the hex nut with a wrench. Allow for swelling in wooden hulls. Remove excess sealant to assure smooth water flow over the transducer.

DANGER: Be sure to immediately check for leaks when the boat is placed in the water. Allow at least 24 hours after installation for any leak to appear.

Maintenance

Before withdrawing the paddlewheel assembly, have the plug at hand, and make sure it has some lubricant such as vaseline on the o-rings. Pull the paddlewheel most of the way out and have plug ready in other hand. Remove paddlewheel and replace with plug rapidly.

Menu Key

The small yellow button on the far left of the unit and labeled "MENU" is used to select between the three main operating Menus of the DC-1000. Each time the Menu button is pressed the "Softkey" labels will change showing a different list of functions. The three main operating menus are shown below:

Menu 1
DEPTH ZOOM ALARMS DATA FREQ

Menu 2
B. LOCK FISH ENHAN GRID LIGHT

Loran Menu
PLOT TO WPT DIGITS RANGE MARK

When you first start the DC-1000, it will automatically start showing Menu 1. Pressing any of the buttons below the labels will allow you to either adjust or change the status of any of those items. For example, if you press the button below Depth, the "softkey" display will change to allow you to adjust the Depth range either up or down. See Figure 7 below.

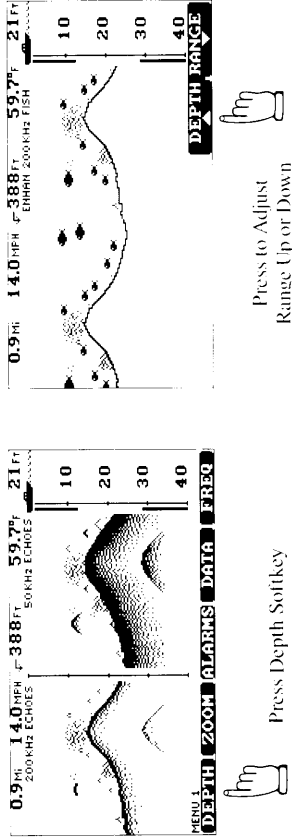


Figure 7—Softkey Operation

Menu 1

DEPTH ZOOM ALARMS DATA FREQ

When you press the button below Depth, the display changes to show:

▲ **Depth Range** ▼

Pressing the button below either the ▲ or ▼ symbol on the display will cause the DC-1000 to either increase or decrease the Depth range.

Cancel Key

The small yellow colored key on the far right of the unit permanently labeled "CANCEL" is used if you want to cancel the current "softkey" submenu and return to a main menu. For example, if you had pressed the **DEPTH** button on the main Menu 1, and had then adjusted the depth range as desired, you may want to return to the main menu to select another feature, such as **ZOOM** or **ALARMS**. You can do this by pressing the **CANCEL** key. It will immediately return the display to the main menu that you were using prior to going to the sub-menu.

On/Off Contrast Control

The On/Off Contrast control is conveniently located to the right of the LCD screen in the upper corner of the unit. It is the larger of the three knobs on the right side of the unit. Turn the knob clockwise to turn the **DC-1000** on; you should feel a "click" and the **DC-1000** will respond with an audible tone when it is turned on correctly. If your unit does not respond with a tone, check that the 12VDC power is correctly connected to the unit and the fuse is not blown.

To adjust the contrast of the display, simply continue to rotate the knob clockwise until the desired contrast level is achieved.

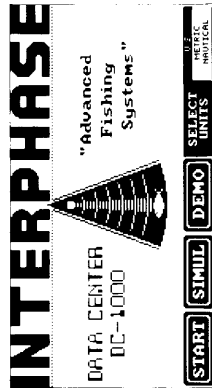


Figure 8

The Opening Menu

The opening menu, shown above, gives you the choice of either starting your **DC-1000** in the normal operating mode (**START**), to choose which of three possible units of measure is to be displayed (**SELECT UNITS**), to operate the unit in a test or simulated mode (**SIMULATOR**), or to go directly into a unique "DEMO" mode. To select your choice, simply push the button below on the display indicating the desired action.

Select Units

The **DC-1000** always starts in the "US" mode unless you decide to change the units on the opening menu. By pressing the button indicated on the display, you can choose between **US**, **METRIC** and **NAUTICAL** modes. The current choice is shown in "reverse" (light letters on dark background) on the display. The choices and results are as follows (Note that the Loran Track-Plot always reads in Nautical Miles regardless of the mode chosen):

Item	US Mode	METRIC Mode	NAUTICAL Mode
Depth	Ft	Meters	Fathoms
Distance Behind Boat	Ft	Meters	Feet
Boat Speed	MPH	Knots	Knots
Distance Log	Mi	Nautical Miles	Nautical Miles
Water Temperature	°F	Centigrade	Fahrenheit
Loran Track Plot	NMI	Nautical Miles	Nautical Miles
Depth	Fa		
Distance Behind Boat	Ft		
Boat Speed	Kt		
Distance Log	NMI		
Water Temperature	°F		
Loran Track-Plot	NMI		

Simulation

Once you have decided to operate the **DC-1000** in the **US** mode, or have decided to change units to **Metric** or **Nautical**, you can then choose the **SIMULATION** or **START** mode. We highly recommend that you first operate the unit in the **SIMULATION** mode prior to using the **DC-1000** to familiarize yourself with its many advanced features. To choose the **SIMULATION** mode, press the button indicated on the **OPENING MENU**.

You can **EXIT** the **DEMO** or **SIMULATION** mode at any time by turning the unit off and back on again.

All of the **DC-1000's** features, with the exception of the **GAIN CONTROLS** are available in the demonstration simulation mode. The pictures shown in the simulation mode are a representation of what you might see on your **DC-1000** under certain conditions. In actual use the picture you will get will vary significantly depending on depth, bottom conditions, speed of your boat and many other conditions.

Demo

If you press the button below **DEMO**, the unit will start and run through a complete demonstration of its features. Just before each function is displayed, the screen will show a lighted area next to the button which, in normal operation, would be pressed to select that function.

After the demonstration program has run through all of its features, it will start over and repeat the sequence as many times as desired.

Note that during the **DEMO** operation, the program takes over and the keyboard will be inoperative. If you want to exit the **DEMO** program, turn the Contrast Control complete counter clockwise to turn the unit **OFF**, and then turn it back **ON**.

Start

If you choose not to view the internal demonstration program press the button indicated below the **START** message. The **DC-1000** will then start in its normal "default" operating conditions, depending on which units of measure were chosen:

When first turned on, the **DC-1000** will always start with the following conditions:

	US	METRIC	NAUTICAL
DEPTH RANGE	0-40 FEET	0-12 METERS	0-6 FATHOMS
FREQUENCY	200 KHZ	200 KHZ	200 KHZ
ZOOM	OFF	OFF	OFF
BOTTOM LOCK	OFF	OFF	OFF
DATA MODE	OFF	OFF	OFF
SHALLOW ALARM	OFF	OFF	OFF
DEEP ALARM	OFF	OFF	OFF
FISH ALERT	OFF	OFF	OFF
ENHANCE MODE	OFF	OFF	OFF
DEPTH GRID LINES	ON	ON	ON

Turn Off

To Turn Off the DC-1000, rotate the Contrast knob counterclockwise until a "click" is heard.

Gain Controls

The DC-1000 has two **GAIN CONTROL** knobs located on the right side of the display below the **Off/On Contrast Control**. The upper control is labeled as 200Khz Gain, and the lower one as 50 KHz Gain. These knobs are used to adjust the sensitivity of the DC-1000's 200Khz and 50Khz receivers during operation. Rotating the knobs clockwise increases the sensitivity; rotating the knobs counterclockwise decreases the sensitivity.

Proper adjustment of the **GAIN** is important to obtain accurate displays of underwater objects. Too little gain will cause a loss of weak signals and too much gain will cause too much noise to appear on the screen making it difficult to see small targets through the noise. Because returning echo signals are generally weaker when coming from greater depths, the optimum **Gain** settings will often change with changing depth conditions. As a general rule, less **Gain** is required in shallow water; more **Gain** is needed at greater depths. Once you become familiar with the effect of the Gain controls on the display, you should have no difficulty adjusting it properly.

To adjust the **Gain** controls, first note which or if both frequencies are in use on the DC-1000 (See page 20, Choosing Operating Frequencies). Then turn the appropriate knob clockwise until the bottom echo on the display is shown as a solid line. Continue to carefully rotate the knob until "noise" appears on the screen (much like "snow" on a TV). Then slowly turn the knob counterclockwise until the noise just disappears; this is the optimum **Gain** control level. For locating fish, especially at greater depths, you will always want to use the maximum level of Gain possible. In shallow waters, when locating the bottom is more important than finding fish, you may want to decrease the Gain more than normal so that you reduce the amount of noise and other objects cluttering the screen.

Understanding the DC-1000 Display

The DC-1000's large high resolution LCD display shows a graphic picture of the water beneath the boat plus many other items of important information, such as the **Digital Depth**, **Boat Speed** and **Distance**, **Surface Water Temperature**, **Distance behind the boat**, **Alarm settings** and more. Please take a minute to review the picture below illustrating the location of these items of information. See *Figure 9*.

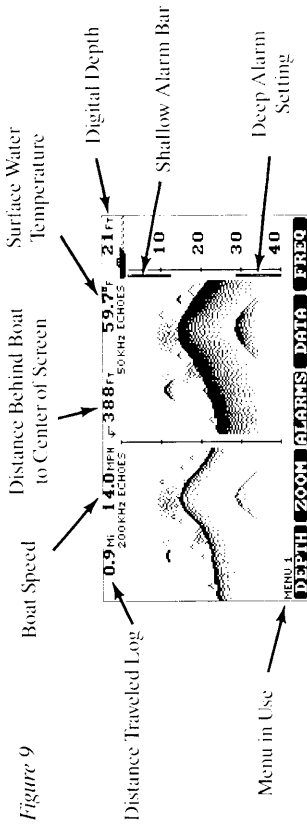
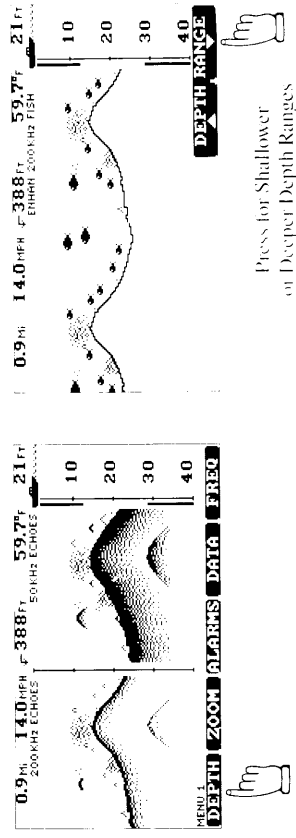


Figure 9

Changing the Depth Range

When the DC-1000 is first turned on, the Depth Range is set at 0-40 feet, 0-12 meters, or 0-6 fathoms, depending on the display units chosen on the opening menu. To change the Depth Range, first use the **MENU** button to select **MENU 1** which shows the **DEPTH** "softkey." Press the button below the **DEPTH** "softkey," and the display's "softkeys" will change indicating which buttons to push to adjust the depth range for more shallow (**▲**) or deep (**▼**) ranges. Each time either the **▲** or **▼** button is pressed the DC-1000 will beep and the display will show the new depth range using the large numbers on the right side of the display. When you're finished adjusting the depth range, you may want to press the **CANCEL** key to return to the main menu for additional feature selections. See *Figure 10* below:

Figure 10 Changing the Depth Range



The **DC-1000** offers seven Depth Ranges to choose from:

<i>US Mode</i>	<i>Nautical Mode</i>
<i>Metric Mode</i>	
0-20 Feet	0-3 Fathoms
0-40 Feet	0-6 Fathoms
0-80 Feet	0-12 Fathoms
0-160 Feet	0-24 Fathoms
0-320 Feet	0-48 Fathoms
0-640 Feet	0-96 Fathoms
0-1280 Feet	0-192 Fathoms

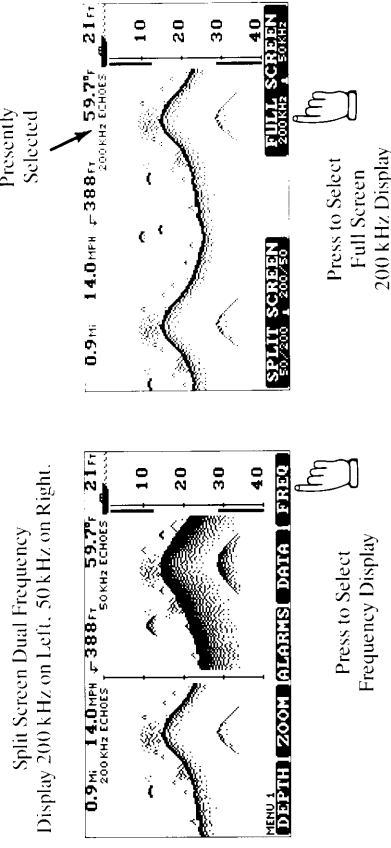
Choosing Operating Frequency(s)

The **DC-1000** has the ability to show depth information from either its 50kHz or 200kHz receiver, or both simultaneously using a split screen display.

Using the 200kHz frequency, your **DC-1000's** display will show more detail than when using the 50kHz, as the narrower 200kHz beam angle will give higher resolution. However, since the transducer's beam angle is larger when using the 50kHz frequency, the **DC-1000's** picture will show a larger area beneath the boat when using the 50kHz frequency. In addition, the 50kHz signal will better penetrate the water to deeper depths than the 200kHz, and is recommended when depth ranges exceed approx. 500 feet. On most depth finders you have to choose which frequency you want when you buy the unit, but with the **DC-1000** you can choose either frequency at will, or even display both simultaneously!

The **DC-1000** starts using the 200kHz frequency as a default. If you want to change the frequency display, first use the **MENU** key to make sure the unit is displaying Menu 1 on the "softkey" display. Then press the button beneath **FREQ** to select a new frequency display. The "softkey" menu will then change as indicated below. You can then choose the desired full screen or split screen display. As soon as you make your choice the **DC-1000's** screen will show the results. See *Figure 11* below. After completing your selection, you may want to press the **CANCEL** key to return to the main menu for more feature selections.

Figure 11—Choosing Operating Frequency(s)



You will note that the **DC-1000** allows you to display simultaneous Dual Frequencies in the split screen mode with the 200kHz and 50kHz sides being reversed. That is, you can either choose a display with 200kHz on the left and 50 kHz on the right, or instead choose to display 50kHz on the left and 200kHz on the right. The reason for this is that the **DC-1000** offers several other features which use a split screen, such as **Zoom**, **Bottom Lock**, **Data**, and **Loran** modes. Whatever frequency you have chosen to be on the right side of the screen will be the frequency that is used with these other features. For example, if you have chosen the frequency display that shows the 200kHz frequency on the right side of the display and then choose the split-screen **Zoom** mode, you will see a "Zoomed" picture of the 200kHz frequency because it was on the right side of the display.

If instead you want to have a "Zoomed" picture of the 50kHz frequency, you first need to make sure that the 50kHz frequency is displayed on the right side of the display before choosing the **Zoom** feature.

Use of the **DC-1000's** internal simulator will further help to explain these effects.

Zoom

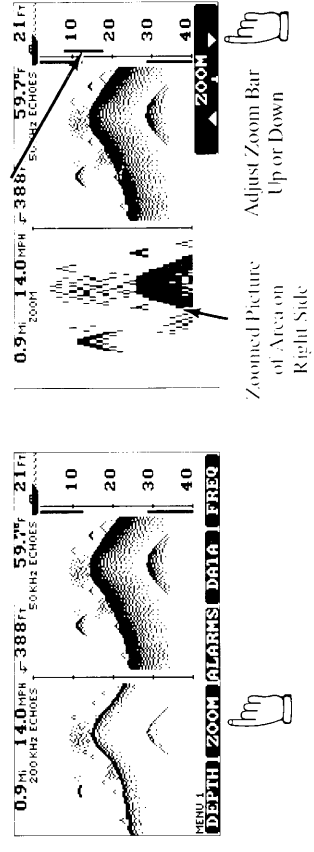
The **DC-1000** has a very powerful, easy to use **Split-Screen Zoom** feature. It allows close inspection of any 25% segment of any depth range, so you can get a **4 X Magnification** of fish or bottom conditions. When this feature is used, the display continues to show the original depth data on the right side of the display and shows the "Zoomed" display on the left.

To activate the **Zoom**, first use the **MENU** key to make sure you have the **Menu 1** displayed as shown below. Then press the button below the **ZOOM** "softkey". The "softkey" display will then change to allow you to adjust the **Zoom** range up or down.

First press the button below the **Zoom** ▼ "softkey" while watching the display. As soon as you first press the button below the **Zoom** ▼ "softkey", the LCD display will "split" and a "zoom" bar will appear on the upper right side of the display just below the picture of the boat. The "zoom" bar indicates the depth area that will be "Zoomed" on the left side of the display.

As you hold down the button below the **Zoom** ▼ "softkey" the "zoom" bar will advance to a lower portion of the display and when the button is released the left side of the **Split-Screen** display will show a **4 X magnification** of the indicated area on the right side of the display. See *Figure 12* below.

Figure 12



Note: If you were operating in a split-screen dual frequency mode before choosing the **Zoom** feature, the frequency that was on the right side of the display will be the frequency that is used for the **Zoom** feature.

Alarms

You have your choice of three adjustable and one pre-set **Alarm** Modes with the **DC-1000**. These include adjustable **Shallow**, **Deep**, and **Zone** Alarms and a pre-set Fish Detection alarm. Operation of the three adjustable alarm modes are described below, the pre-set Fish Alarm is described in the section regarding the **Fish Alert** feature.

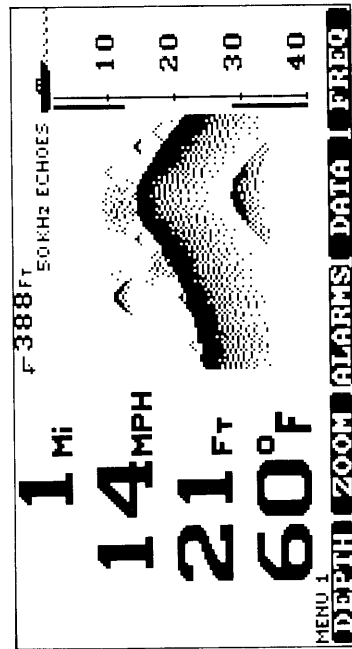
The status of each of the adjustable alarms is visually displayed on the far right side of the display as a verticle bar, see *Figure 13* below. The area of the alarm can easily adjusted to any depth. Whenever a solidly displayed target appears at the same depth as that covered by the alarm bar, the audio alarm sounds to warn of fish or changing bottom conditions.

Shallow & Deep Alarms

The **Shallow** and **Deep Alarms** are used to detect the presence of fish or changing bottom conditions. They will sound whenever any solid target appears that is at the same depth as the alarm bar. The **Shallow Alarm** is often used to both alert the user to shallowing bottom conditions and the presence of underwater targets such as fish. The **Deep Alarm** is often used in conjunction with the **Shallow Alarm** to define a depth range. If the depth becomes less or greater than the alarm settings, the audio alarm will sound as a warning.

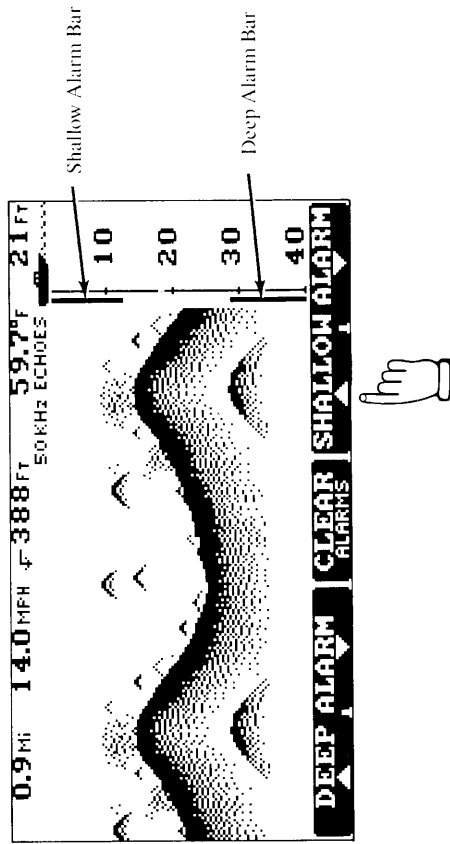
To activate the **Shallow** or **Deep Alarms**, first use the **MENU** button to make sure **Menu 1** is displayed on the screen. Then press the button below the Alarm "softkey". The "softkey" display will then change as shown below to allow selection and adjustment of the alarms. See *Figure 13* below.

Figure 13



Press Alarm Softkey

Figure 14



Press to Adjust Alarm

To adjust the **Shallow Alarm**, push and hold down the button below the **Shallow Alarm** "softkey" while watching the right side of the LCD screen. As you hold down the button, you will notice a verticle bar appears just below the boat picture and advances downward. Release the button when the bar has advanced to the desired depth. For example, if you want to set the **Shallow Alarm** to sound if the depth gets less than 20 feet deep, hold down the button until the bottom of the bar is at 20 feet. Now, any solid target such as the bottom, or large fish that are displayed at depths less than 20 feet will sound the alarm.

Press the button below the **Clear Alarms** "softkey" to clear and silence all the adjustable alarm settings.

The adjustment for the **Deep Alarm** is the same, except that to activate this alarm, you need to press the button below the **Deep Alarm** "softkey". As you hold this button you will notice a verticle bar appear from the bottom right side of the display, below the boat picture and advance upward. Hold the button to adjust the top of this bar to the desired depth and release. If the bottom depth increases below this setting the audio alarm will sound.

Zone Alarm

An active **Zone Alarm** can be created on the **DC-1000** by using both the **Shallow** and **Deep Alarms**. If the vertical alarm bars on the right side of the display are "overlapped" (that is if the **Shallow Alarm Bar** overlaps the **Deep Alarm Bar**), a new **Zone Alarm** will result and will be displayed.

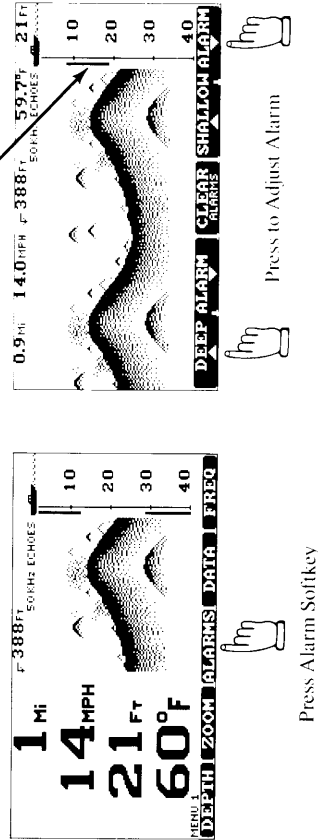
A **Zone Alarm** is useful if you want the alarm to sound only for targets located in a specific adjustable depth range. It can also be very useful to create an Alarm which will not "see" **surface clutter** or noise, but which will sound on fish or changing bottom conditions. This latter feature is especially important when using the 50kHz frequency in shallow depths due to the larger amount of surface clutter which will often appear in the 50kHz display.

As an example on how to set the **Zone Alarm**, suppose you want to create a **Zone Alarm** covering the depth from 10 to 20 feet. First press the **Shallow Alarm** button until the **Shallow Alarm** bar moves down to the 20 foot depth. Then press the button below the **Deep Alarm** until the **Deep Alarm** bar moves up past the 20 foot depth to the 10 foot depth. You will notice that when the Alarm bars overlap, the display changes to show only the overlapped area of the Alarm bars. This is the **Zone Alarm Bar** and indicates the area covered by the **Zone Alarm**. See *Figure 15* below. Any solid targets that are displayed in this "zone" will now sound the audio alarm.

It is important to realize that the **Zone Alarm** is the result of "overlapping" the **Shallow** and **Deep Alarm** bars, and a readjustment of either the **Shallow** or **Deep Alarms** will cause the resulting **Zone** to change. To increase the size of the **Zone** upward, it will be necessary to first choose the button below **Deep Alarm** to raise the **Zone** to the desired depth. Similarly, to increase the size of the **Zone** downward, press the **Shallow Alarm** button until the zone is at the desired depth.

To clear the **Zone Alarm**, press the button below the **CLEAR ALARMS** "softkey".

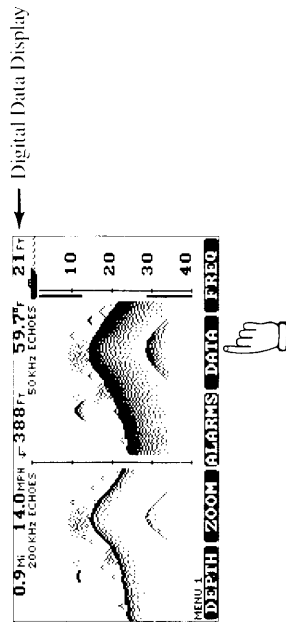
Figure 15—Zone Alarm



Data

The **DC-1000** measures and displays a large amount of graphic and digital data relating to the depth, boat speed, water temperature, distance behind the boat and even includes a resettable distance log. During normal (non split-screen or Ioran track-plot) modes the digital data is displayed across the top of the display as indicated in *Figure 16* below.

Figure 16—DC-1000 Normal Data Display Locations



The **DC-1000** also offers two special split-screen **Data** modes that shows all important digital data in super large digits or with autoranging graphs of the past 7 minutes of boat speed and surface water temperature on the left side of the display while continuing to show the graphic bottom display on the right. See *Figure 17* below.

To get into the **Data** mode, use the **MENU** key to put the **Menu 1** "softkeys" on the display and press the button below the **DATA** "softkey". The "softkey" menu will then change to allow you to select **Large Digits**, **Speed/Temp Graph**, or to do a **Log Reset**. After making your selection, you may want to press the **Cancel** button to return to the main menu for more selections.

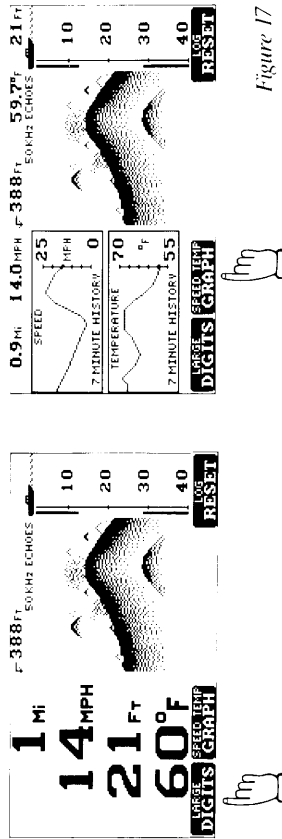


Figure 17

Bottom Lock

The **DC-1000's** split-screen **Bottom Lock** feature provides an expanded view of fish and other targets just off the bottom on the left side of the screen, while continuing to show the normal picture on the right. **Bottom Lock** is a very powerful feature to help find fish and other objects close to the bottom, especially when the bottom is uneven and/or rocky. It eliminates most of the guesswork about whether your observing an object on the bottom such as a rock, or if your seeing fish or other suspended objects. See *Figure 18* below.

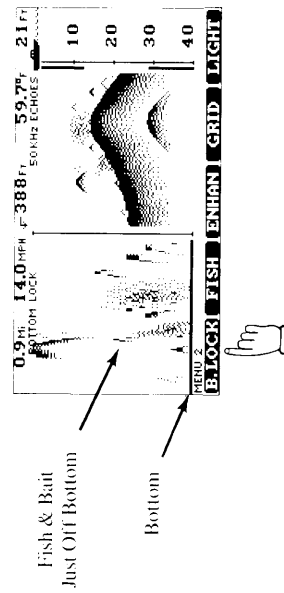
Note that the **Bottom Lock** image on the left side of the screen is derived from the picture on the right side. Therefore, as with the **Zoom** feature, make sure the frequency of interest is in the right side of the screen before choosing the **Bottom Lock** feature. The **DC-1000** allows you to **Bottom Lock** on either the 50kHz or 200kHz picture if it is positioned on the right side of the screen.

To enter the **Bottom Lock** mode, use the **MENU** key to put the Menu 2 "softkeys" on the display and press the button below the **B.LOCK** "softkey". The display will split and the left side of the display will begin showing an expanded view of targets just off the bottom.

Note: In order for the **Bottom Lock** to work, the bottom must be in view on the right side of the display prior to entering the **Bottom Lock** mode.

The **Bottom Lock** range is equal to 25% of the Depth Range. If, for example, you are on the 0-40 foot depth range, the **Bottom Lock** display will show 25% of the 0-40 foot range, or 10 feet above the bottom. Similarly, on the 0-160 foot range, the **Bottom Lock** display will show 40 feet above the bottom.

Figure 18—DC-1000 Bottom Lock



Fish Alert

The **DC-1000** has a useful feature to help you identify fish, called **Fish Alert**. When the **Fish Alert** feature is turned on, the **DC-1000's** microprocessor scans the output of the receiver and looks for specific patterns which it has been programmed to recognize as fish. If it thinks it "sees" a fish, it then creates a symbol of the fish and displays it instead of the normal display marking.

The **DC-1000's Fish Alert** allows you to concentrate on fishing and not on trying to evaluate whether your **DC-1000** is showing you arches, dots, or blobs. If the **DC-1000** thinks it "sees" a fish it will show a fish symbol. The unit shows what it thinks as larger fish as larger **Fish Symbols** and smaller fish as smaller **Fish Symbols**. If the **DC-1000** doesn't think a target is a fish, it will show on the display as it would have without the **Fish Alert**. This is a significant improvement over many other fishfinders that will show any target off the bottom as a fish.

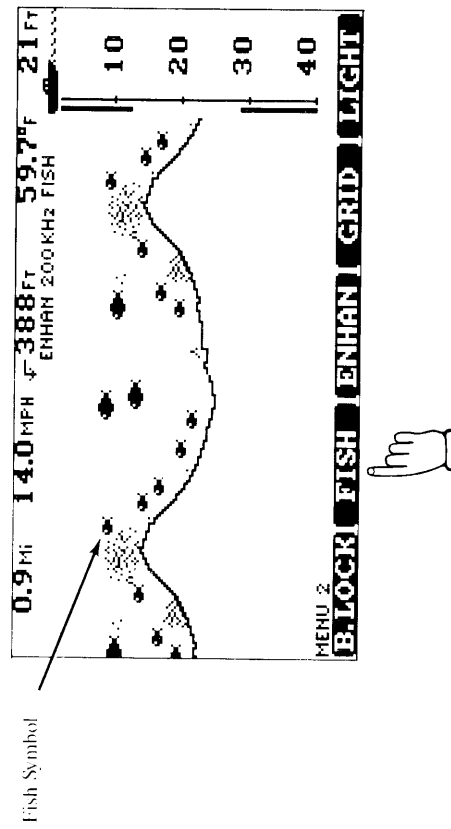
In the split-screen **Dual Frequency** display, the **Fish Alert** will only work on the frequency selected for display on the right side of the screen. The frequency on the left side will continue to show fish and bottom conditions in a normal (non **Fish Alert**) fashion. See *Figure 19* below.

IMPORTANT: The **Fish Alert** feature will not work unless the range selected displays the bottom!

To enter the **Fish Alert** mode, use the **MENU** key to put the **MENU 2** "softkey menu" on the display and then press the button below the **FISH** "softkey".

When you turn **ON** the **FISH ALERT**, notice that at the top right side of the screen the frequency description will change from reading **(200 kHz Echoes)** to **(200 KHz FISH)**. This is to remind you that you have the **Fish Alert** feature **ON**.

Figure 19—DC-1000 Fish Alert



Fish Alarm

The **DC-1000** also includes an innovative and useful **Fish Alarm**. The **Fish Alarm** works in a similar fashion to the **Fish Alert**, but can be used either with or without the **Fish Alert** feature to warn you of the presence of fish.

When you turn the **Fish Alarm ON**, a small "bell" symbol will appear just in front of the boat symbol at the upper right side of the display. When you turn the **Fish Alarm OFF** the small "bell" symbol will disappear indicating the feature is **OFF**.

Enhance

The DC-1000's **Enhance** feature shows the bottom as a thin line, regardless of bottom structure making it easy to focus on fish and to detect objects just off the bottom. It is much easier for the human eye to detect small objects (such as bottom hugging fish) just off the bottom when the bottom is displayed as only a thin line rather than a large thick section. See *Figure 20* below.

The **Enhance** feature has no effect on the display of fish or submerged objects above the bottom.

To turn **ON** the Enhance feature, use the **MENU** key to put the Menu 2 "softkey" on the display and press the button below the **ENHAN** "softkey".

Note: When the **Enhance** feature is **ON** the frequency description on the upper right side of the display will change from (200 KHz Echos) to read (ENHAN 200 KHz Echos) indicating the feature is turned **ON**.

In the split-screen **Dual Frequency** display, the **Enhanced** feature will only work on the frequency selected for display on the right side of the screen. The frequency on the left side will continue to show fish and bottom conditions in a normal (non **Enhanced**) fashion. See *Figure 21*.

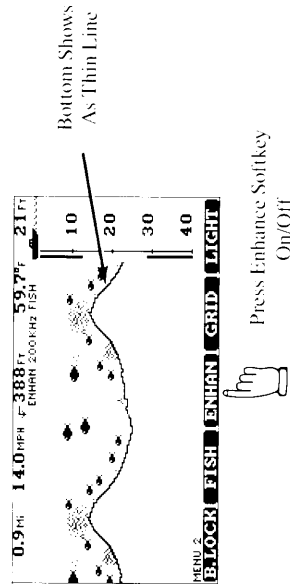


Figure 21

Grid

The horizontal depth **GRID** lines on the DC-1000 may be turned **ON** or **OFF** depending on fishing or trolling conditions. When trolling, especially when trying to observe downrigger weights it is often advantageous to turn **OFF** the **GRID** lines to more clearly show the track of the downrigger. To turn **OFF** the **GRID** lines, use the **MENU** key to put the Menu 2 "softkeys" on the screen and press the button below the **GRID** "softkey". To turn the **GRID** lines back **ON**, repeat the above process. See *Figure 22*.

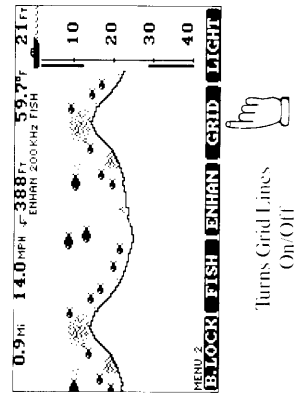


Figure 22

Light

The LCD display used on the DC-1000 includes a **Light** that can be turned **ON** during low light conditions. When the **DC-1000** is first turned on the back light also comes **ON**, but after approx. 20 seconds automatically turns itself **OFF** to conserve power supply current.

To turn **ON** the **LIGHT**, use the **MENU** key to put the Menu 2 "softkeys" on the screen and press the button below the **LIGHT** "softkey".

Note: During bright light conditions, it may be difficult to know whether you have the back light **ON** or **OFF**. When the DC-1000's **Light** is **ON**, a small **Light Symbol** appears just in front of the **Boat Symbol** at the upper right corner of the display. When the **Light** is turned **OFF** the **Light Symbol** disappears.

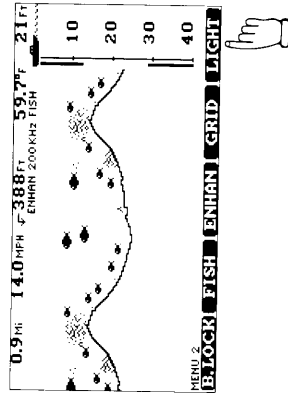


Figure 23

Loran

If your Loran has the proper NMEA 0183 output capability, or if you own the **Interphase DC-2000 Loran**, you can interface the **Loran's Data Output** to the DC-1000. The DC-1000 will then act as receiver for **Loran's Data Output** and can provide a **Graphic Track Plot** of your vessels current Latitude/Longitude position. In addition, the DC-1000 will graphically show your boat's position in relation to any selected **Waypoint** with **Course** and **Distance** information to that **Waypoint**.

The DC-1000 also allows you to provide up to five "Marked" positions, and to "Mark" the positions with five different descriptive symbols (Fish, Anchor, Flag, or the number's 1 and 2).

In addition, the DC-1000 will also show a numerical display of your Loran's output showing your vessel's current position and the course and distance to any selected waypoint.

Note: The selected waypoint is one that you have selected on your Loran.

To enter the Loran mode, use the **MENU** key to put the Loran Menu "softkeys" on the screen, and then select the desired display by pressing the button below the **WPT**, **TO WPT**, or **DIGITS** "softkeys". The **RANGE** "softkey" is used to change the scale of the **Track Plot**, and the **MARK** "softkey" is used to "Mark" desired locations on the **Plot** with **Symbols**. See *Figure 24* below.

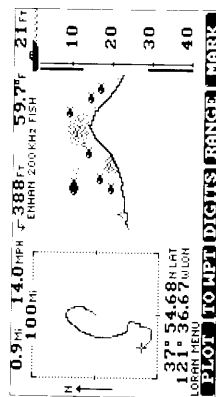
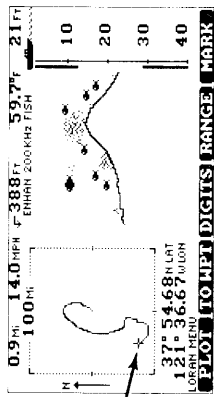


Figure 24

Plot

If you select the **PLOT** feature, the **DC-1000's** screen will split to show the **Loran's Track Plot** on the left side of the screen. If your Loran is connected properly and in a "READY" condition, the **DC-1000** should immediately display a Latitude and Longitude just below the **Track-Plot Grid** which should agree with your Loran's reading. Your vessel's position will start at the center of the **Track-Plot Grid** and is identified as a small "Bulls-Eye". As your boat moves the "Bulls-Eye" will also move leaving behind a series of dots, or a **Track-Plot**. The **Track-Plot** shows where your boat has been. See *Figure 25*.



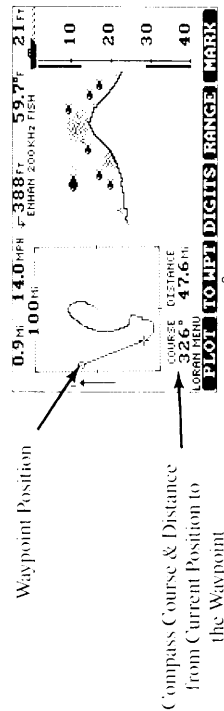
Bulls-Eye Shows Current Position

Press Plot Softkey

Figure 25—DC-1000 Loran Plot Mode

To WPT

If you press the button below the **TO WPT** "softkey", the **Track-Plot** will also show a selected **Waypoint** on the display (identified with a "W") and will draw a solid line from your vessel's current position (the "Bulls-Eye"), to the Waypoint ("W"). In addition, just below the **Track-Plot Grid** the **Course** and **Distance** from your current position to the Waypoint is displayed. See *Figure 26*.



Course Course & Distance from Current Position to the Waypoint

Press To WPT Softkey

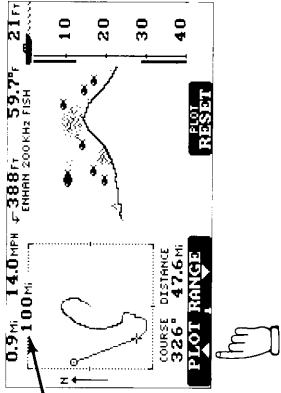
Figure 26—DC-1000 To WPT Mode

Range

When you are using the **Loran Plot** or **To Wpt** displays, you may want to change the plotting scale. When you first enter either of these displays, the **Track-Plot Range** is automatically set to the 1 Nautical Mile Range. That means that the **Track Plot Grid** is 1 Nautical Mile on each side, or 1/2 Nautical Mile from the center to the side.

Ranges available on the **Track-Plot** are from **1, 2, 4, 8, 16, 32, 64, and 128 Nautical Miles**.

To change the **Plot Range**, press the button below the **RANGE** "softkey" (in the Loran Menu). Then press the button below the **PLOT RANGE** ▲ and ▼ "softkeys" to make your selection. After making your selection, you may want to press the **CANCEL** key to return to the Loran Menu for more feature selections.



Shows Plot Scale

Figure 27

Plot Reset

If you Press the button below the **PLOT RESET** "softkey", the current plot, including all the "marked" locations will erase and you will start a new plot. Your vessel's position (the **Bull's-Eye**) will return to the center of the screen and all other past information will be lost. After **Reset**, press the **CANCEL** key to return to the Loran Menu for more feature selections.

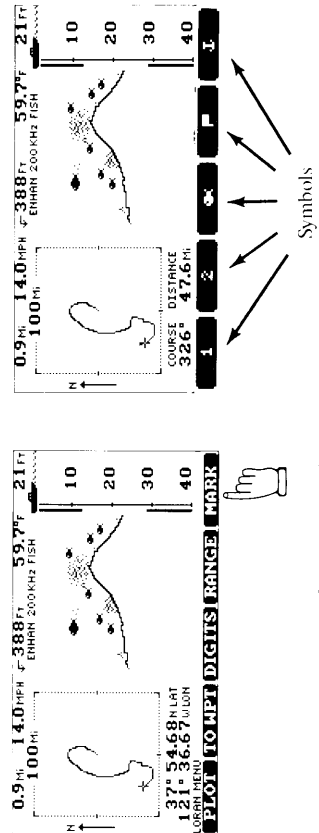
Mark

If you would like to "**Mark**" certain locations on your **Track-Plot** press the button below the **MARK** "softkey". The display will then show five possible **Symbols** that you can use to "**Mark**" the desired locations. Press the button below the desired **Symbol** and the **DC-1000** will add that **Symbol** to its **Track-Plot**.

IMPORTANT: If you change **Track Plot** ranges, or exit the Loran **Track-Plot** display to use a different split-screen display, such as **Zoom**, the number of **Plot** positions which the **DC-1000** will remember when and if you return to the Loran **Track-Plot** display is limited due to internal memory considerations. However, as long as you do not change **Track-Plot Ranges** and the **Track-Plot** remains on the display, the **DC-1000** will "remember" all of the plotted data.

The **DC-1000** receives and plots the Loran data only when the **DC-1000** is in the **To Wpt** or **Plot** modes. If you leave the **Loran Track-Plot** mode for any length of time and later return to the **Track-Plot** mode, there may be a "gap" in the **Track-Plot**, indicating that the **DC-1000** was not receiving Loran data during that period of time.

Since the **DC-1000** shows both the **Fishing** and **Loran** data on the screen at the same time, it should be possible to minimize the time when the **Loran Track-Plot** is not displayed. This will minimize "gaps" in the **Track-Plot**.



Symbols

Press Mark Softkey

Technical Data on Loran Track-Plot Interface

The DC-1000 accepts Loran data in the NMEA 0183 data format. This interface has been tested and verified with the **Interphase DC-2000 Fishing Loran**. Other lorans with the proper NMEA 0183 output should also work, but **Interphase** cannot fully guarantee that the DC-1000 will work with other manufacturers' lorans. For further information about other manufacturer's loran compatibility with the DC-1000, contact **Interphase's Technical Support Group** at (408) 426-2007.

The Loran needs to be connected to the DC-1000 via the three pin jack on the rear panel of the DC-1000. The pin connections for the jack on the rear of the DC-1000 are as shown below.

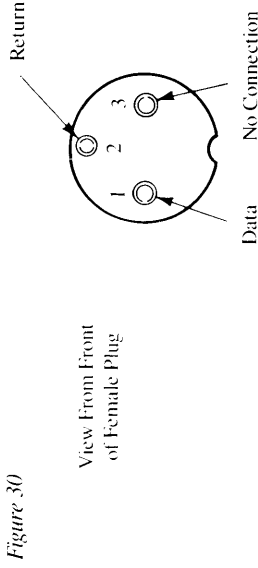


Figure 30

The data sentence is as follows:

\$LCLL...N...W
\$LCBWC...N...E...T...M...N

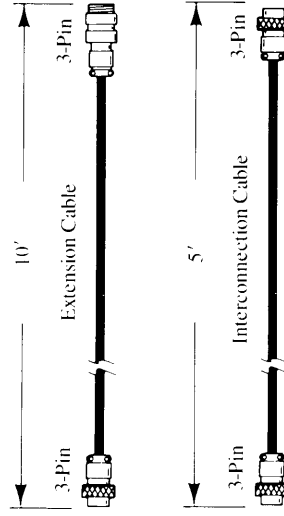


Figure 29—DC-1000 Loran Digits Mode

Interphase offers a 5' long interconnection cable and a 10' long extension cable that will easily interconnect the **Interphase DC-1000** to the **Interphase DC-2000 Fishing Loran**. When the DC-1000 is used with other manufacturers' lorans you may need to change the loran connector on this cable, or provide a new cable of your own. Part numbers of the Interphase cables are as follows:

5' long **Interphase Loran/fishfinder interconnection cable**, (PIN SI-0500-023)

10' long **Interphase Loran/fishfinder extension cable**, (PIN SI-0500-024)

Note: The **North Arrow** on the **Track-Plot** display represents **TRUE NORTH**, not magnetic north, however, when in the **TO WPT** mode, the **Course** that is shown in numbers just below the **Track-Plot** grid is the **Magnetic**, or **Compass** course. See **Figure 28**.

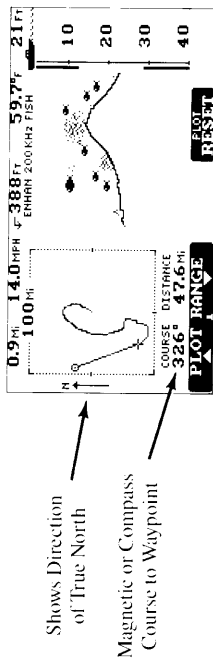
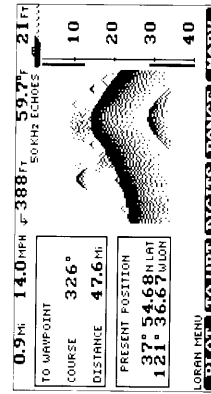


Figure 28

Digits

If you only wish to use the DC-1000's display as a **Remote** for your Loran, you may want to press the button below the **DIGITS** "softkey". In that mode, the left side of the DC-1000's screen will show in numerical format, your vessel's current **Latitude** and **Longitude** in addition to the **Course** and **Distance** to any Waypoint selected by the Loran. See **Figure 29**.



Press Digits Softkey

Interpreting Your DC-1000 Display

The **DC-1000** has been designed to display the bottom and other targets beneath your boat as dark areas on the LCD display.

On all depth ranges, the top of the display represents the water surface and is often called the "zero line" or "transmission line". The transmission line will appear larger on shallower ranges and decrease in size as deeper ranges are selected. The size of the transmission line increases or decreases on a given range depending on surface water turbulence and the frequency being used. The 50kHz frequency has a larger transmission line due to more "ringing" in the transducer after the transmit pulse than the 200kHz frequency and in shallow water you will probably prefer to use the 200kHz frequency.

The screen of the LCD is made up of 240 vertical columns of information, each of these columns include the transmit pulse "transmission line" at the top and any echoes or reflected pulses between the top and bottom. If you are familiar with the operation of a "flasher-type" depth sounder, consider that each column of information is equivalent to a rotation of the flasher. The transmission line corresponds to the "zero flash" on the flasher, and any return echoes between the top and bottom of the screen correspond to the "target" flashes on the flasher. The only difference is that on the **DC-1000** the information is presented in a straight vertical column while on the flasher it was presented on a circle.

In addition, a flasher can only present the immediate information, it has no memory capability. If you're not looking at the flasher type depth sounder when a fish is detected, you'll never see it. On the **DC-1000**, however, the screen shows the last 240 columns of information so you get the immediate information plus the last 240 recordings all presented next to each other across the **DC-1000's** screen.

Each time the **DC-1000** collects a new column of information it moves the previous columns to the left on the screen and inserts the latest information on the far right hand side. This is why the picture on the **DC-1000** appears to move from right to left and this is how past and present history of bottom and fish and other submerged objects below the surface are displayed.

Fish, bait and other submerged objects will appear between the transmission line and the bottom. In general, larger fish or dense schools of fish will cause strong echoes and will be displayed as a solid indication, while small fish, schools of bait, underwater weeds or plants will often show as a spotty or non-solid indication. There are however a variety of ways this underwater matter can appear on your screen.

As shown in *Figure 3f*, the **DC-1000** transmits a short burst of electrical energy to the transducer (which acts like a high frequency audio speaker) which then sends an acoustic signal into the water. This acoustical energy leaves the transducer in a cone-shaped pattern. The acoustical signal then travels downward at the speed of sound in water (approx. 5000 feet/second). When the acoustic signal hits the bottom, or strikes any fish or submerged objects it is reflected upwards and a small amount of acoustic energy will be picked up by the transducer (which in this case is now acting like an underwater microphone). These return echoes (from the bottom, fish and any other submerged objects) are picked up by the transducer and turned back into small electrical signals which are then amplified and displayed on the **DC-1000's** screen.

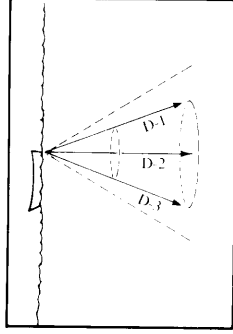


Figure 3f

All targets within the cone angle will be "seen" by the transducers acoustic radiation and will cause a return echo. Fish that are not directly beneath the boat (location D-1) will be "seen", just as fish at location (D-2). However, even though both fish targets will cause an echo, the distance from the transducer to D-1 is greater than the distance to D-2, so the **DC-1000's** screen will show the fish at location D-1 at a slightly lower position on the screen (deeper depth) than the fish at D-2. In a similar fashion, if a fish swims from location D-1 to D-2, and then on to position D-3, it will appear to form an arch on the screen of the **DC-1000**. It is important to note that the greater the cone angle, the more this effect (arching) will occur.

Fish may also appear as dots, half moons, or blobs, depending on how the fish enters the cone angle and how long it stays in the cone angle. The longer the fish stays stationary under the boat (inside the transducer cone) the longer it will stay on the display and can appear as a long horizontal line. By using the **DC-1000's Fish Alert** feature, you can have the **DC-1000** convert the most likely fish echoes into actual computer generated fish symbols which will make fish identification much easier. Please remember however, that the **Fish Alert** feature will try its best to only show fish as fish, but can make mistakes.

The width and contrast of the bottom display will vary with the gain settings on the **DC-1000**, the bottom depth, and whether the bottom is hard (rock) or soft (mud). In general, a hard rocky bottom will show up as a thicker line than a mud bottom. In rough water, surface noise (snow) typically appears just below the transmission line. In extreme cases, or in very shallow depths when using the 200kHz frequency and often when using the 50 kHz frequency, the shallow alarm, if set, may activate with the surface noise. If this becomes a problem, you may want to use the **Zone Alarm** instead, setting the **Zone** below the surface clutter.

Cone Angle: The cone angle of a transducer is an indication of how much bottom and/or fish detecting area is covered at different depths. In general, the higher the operating frequency of a transducer the smaller its cone angle. A narrow cone angle covers a smaller bottom area at a given depth than a wider cone angle.

The **DC-1000** offers two operating frequencies: 50kHz and 200 kHz with 40° and 10° cone angles respectively. There are advantages to both types of cone angles. The wider cone angle covers more area and hence may show more fish, but the narrower cone angle will give you a more accurate location of the fish. In addition, the lower 50kHz frequency penetrates the water to deeper depths than the higher 200kHz frequency so it is usually the frequency of choice for deeper fishing.

The table below shows the area and the approximate diameter in feet covered at a given depth for each of the 10° and 40° cone angles used in the standard **DC-1000's** transducer.

Water Depth in Feet	10° (200kHz) Diameter	40° (50kHz) Diameter
10'	1.8'	7.3'
20'	3.5'	14.6'
50'	8.8'	36.4'
100'	17.5'	72.8'
200'	35'	145.6'
500'	87.5'	364'
1000'	175'	727.9'

Maintenance

The **DC-1000** has been designed to provide reliable, trouble-free performance for years. Follow the maintenance tips below to ensure your **DC-1000** remains problem-free.

- 1) Keep your **DC-1000** clean and dry. Occasionally wipe unit off with a damp cloth, but be careful not to scratch the LCD screen. For stubborn dirt, use a mild soap and a damp cloth. NEVER USE SOLVENTS SUCH AS PAINT THINNER, ACETONE, OR GASOLINE TO CLEAN YOUR **DC-1000**.
- 2) Occasionally clean the face of the depth transducer (sensing surface) and carefully remove any marine growth. Use a mild detergent or fine sandpaper to remove stubborn growth.
- 3) If the in-line fuse is blown, replace it with a 3-amp fuse. NEVER REPLACE WITH A HIGHER AMP RATING! If the fuse continues to blow, check the polarity of your 12 VDC power source. If the polarity is correct, check with **Interphase Technologies Customer Service Department**.

Troubleshooting Guide

Problem

Unit will not turn on.

Solution
Check fuse, battery voltage and power connections.

Unit beeps but no picture appears.

Check your connections to the transducer.

Unit blows fuses.

Wiring is reversed or there is excessive current from the battery.

Loses picture at speed.

Adjust the transducer angle.

Speed display is erratic.

Check and clean the impeller wheel and the surrounding area—be sure the impeller wheel spins freely.

Digital water depth not working.

Increase your gain, and check that you are in the proper depth range.

LCD bleeds out in sunlight after prolonged use.

Over exposed to the sunlight—provide shading for display.

Screen is full of noise, or has dots running through it.

Reduce your gain setting and review the section on interference.

Interference Problems

Interference can come from several sources. The most common of these are:

- 1) Other nearby depth sounders operating at the same frequency.
- 2) Radiated interference from the boat's electrical system (alternator, distributor, and spark plugs), or from nearby equipment that radiates electrical noise.
- 3) Conducted interference usually occurs when the **DC-1000** shares 12 VDC power leads with other noisy equipment (i.e., bilge pumps, motors, refrigeration systems, autopilots, etc.)

Interference caused by nearby depth sounders operating on or near the same frequency as the **DC-1000** will typically appear as "rabbit tracks" that march up and down the screen. Reducing the Gain will help minimize this problem.

Radiated interference caused by the boat's engine can usually be identified by observing the **DC-1000** with both the engine running and turned off. If the interference disappears when the engine is turned off, it's safe to assume the engine is the source of the interference.

This type of interference can usually be eliminated by using the same techniques used in the automotive industry to eliminate interference to car radios, CBs, etc. The following actions may be required:

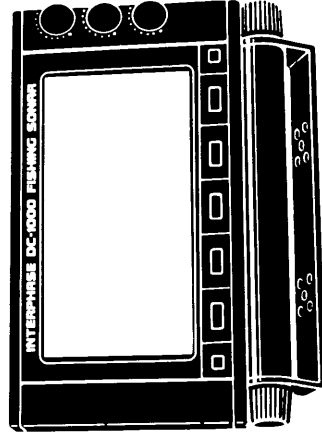
- 1) Reduce the Gain to minimize interference.
- 2) Make sure your boat uses resistor-type spark plugs and plug wiring.
- 3) Install a suppressor on the center lead of the distributor.
- 4) Install an alternator filter to smooth the alternator's output signal.

Interference may also be caused by radiation from other nearby equipment and can be detected by turning off all other equipment and observing the **DC-1000** display as each suspected source is turned back on. This type of interference can usually be eliminated by moving the **DC-1000** away from the source and checking to ensure that the interfering source is properly grounded.

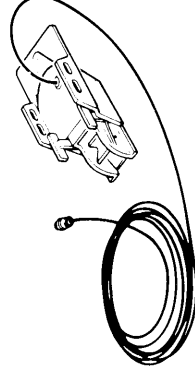
Interference causing the display to be unstable, to pulsate or periodically change size is usually caused when another piece of equipment shares the same 12 VDC power leads from the battery. This problem is especially severe when equipment requiring large current surges (i.e., autopilots, refrigerators, or bilge pumps) shares the same power leads. Minimize this type of interference by running the **DC-1000's** 12 VDC power leads, or those of the interfering equipment, directly to the battery.

Your authorized marine electronics dealer is familiar with the methods of reducing electrical interference and is qualified to assist you should a problem persist.

Specifications



Power Cable



Triducer

Display Type:

30,720 pixel SuperTwist LCD

Transmit Frequency:

200 kHz & 50 kHz.

Basic Depth Ranges:

0 to 20 feet
0 to 40 feet
0 to 80 feet
0 to 160 feet
0 to 320 feet
0 to 640 feet
0 to 1280 feet

Zoom Ranges:

Variable Zoom allows any 25% of any depth range to be displayed across the entire screen.

Pulseshift and Sounding Rates:

Automatically optimized for selected range.

Transmitter Power:

100 watt RMS (800 watts peak to peak).

Surface Water Temperature:

Display continuously indicates surface water temperature in tenths of a degree F from 32.0° to 99.9°F.

Power Requirements:

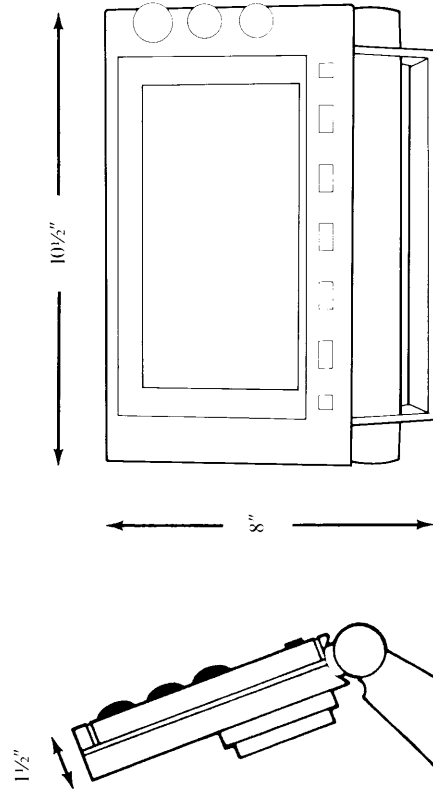
11 to 15 VDC, less than 0.5 Amp.

Standard Equipment:

Display unit, 12 VDC power cable with in-line fuse, mounting bracket with knobs, operation manual, and transom mount transducer.

Standard Transducer Options: • Bronze thru-hull, includes temperature, speed and dual depth sensors.

Specifications subject to change without notice.



Weight 3 lbs.

Most Asked Questions About the DC-1000

Q. When in very shallow waters, why does the DC-1000 seem to give erratic digital depth readings?

A. Depth sounders, operating on the principle of sonar or echo readings, have to transmit and receive signals and then compute the data for display on your screen. In order to operate, there is a time delay between transmitting and receiving. In waters under four or five feet the signal and echo may be too close together to accurately provide true depth readings.

Q. The DC-1000 displays depth ranges down to 0-1280 feet. Why does my unit only show readings to about 500 feet?

A. Factors influencing depth range include uniformity of water temperature, clarity, salinity and bottom condition. Lower frequencies, by nature, can travel further through water. Thus, in average conditions, the 50 kHz frequency may reach deeper depth ranges than the 200 kHz frequency.

Q. What should the boat voltage be for optimum performance?

A. Approximately 13.6 VDC. If your voltage is frequently above 15 VDC, it is recommended to check your engine's voltage regulator or install a voltage regulator on the power line.

Q. How fast can my boat speed be and still receive a good picture on my DC-1000?

A. The narrower the beam angle of your transducer, the higher speed you can travel and still retain a good picture. Also affecting the quality of picture at speed are transducer mounting and transducer alignment. With the 200 kHz frequency and proper transducer installation, you may keep a good picture at approximately 35 mph.

Q. Why did my DC-1000 not mark fish that were being caught in various areas around my boat?

A. Aside from proper gain setting, the beam angle of your transducer and the depth of the fish in the water are factors to consider. The signal from your transducer builds out, almost like a flashlight beam, as it travels further away. If fish are off to the side of your boat and at relatively shallow depths, they may not enter within your beam angle and not mark on your display.

If you feel your set is not operating properly and you need service, we strongly recommend you first call our friendly Customer Support Group (408) 426-2007 to make sure your set needs to be returned to the factory.

If you do need to return your set, send it to the following address:

**Service Department
Interphase Technologies
1201 Shaffer Road
Santa Cruz, CA 95060**

In addition, to speed your repair please fill out the following, tear out of this manual, and tape to your unit for our technicians to review.

RETURN TO: _____ (Name)

_____ (Street Address)

_____ (City) _____ (State) _____ (Zip)

Day Phone (_____) _____

Evening Phone (_____) _____

Model: **DC-1000** Serial # _____

Purchase Date ____/____/____ In warranty? Yes _____ No _____

Type of transducer: Transom mount _____ Thru-Hull _____ Other type _____

Please describe the problem in as much detail as possible.

2880 Research Park Drive, Suite 140
Soquel, CA 95073

Phone: 831-477-4944 Fax: 831-462-7444

INTERPHASE TECHNOLOGIES LIMITED WARRANTY

Interphase Technologies, Inc. warrants this product to be free from defects in material and workmanship for one year from the date of purchase.

Any unit that fails during the warranty period will, at Interphase's option, be repaired or replaced at no charge to the customer provided it is returned to Interphase. Freight prepaid with proof of date of purchase and a description of the malfunction. Repair or replacement during the warranty period will not extend the basic warranty period.

This warranty does not apply to an Interphase product that has failed due to improper installation, misuse, or accident, nor does it apply to products which have been repaired or altered outside the Interphase factory unless authorized in writing by Interphase.

Any costs incurred with transducer replacement is specifically excluded from this warranty other than the cost of the transducer itself.

This warranty does not include incidental or consequential damages and Interphase disclaims any liability for any such damages. All implied warranties, if any, are limited in duration to the above stated one year warranty period. Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages, therefore, the above limitations may not apply to you. **The completion and return of the enclosed registration card is a condition precedent to the warranty coverage.** This warranty gives you specific legal rights which may vary from state to state and province to province.

This warranty is limited only to the original purchaser of the unit.